Postdoc position on physically constrained artificial neural networks

Location: University of Montpellier (France) - Laboratory of Pathogens and Host Immunity (LPHI)

Positions available: postdoc researcher / Contractual researcher

PI name: Gabriele Orlando

Funding : The position is fully funded for 12 months. The candidate will be required to submit grant applications during the term. The contract begins the 01 of April 2025.

Project description: Background: Stimuli-responsive polypeptides (SRPs) are protein-based drug carriers that offer a high degree of customization and can be programmed to specifically release a drug when encountering a specific chemical microenvironment. Unlike conventional systems made from organic materials or polymers, which often lack the flexibility needed to function in complex and variable disease settings, SRPs can be tailored to recognize a wide range of physical and chemical triggers. From the molecular point of view, many SRPs have been shown to release the drug via a reversible liquid liquid phase separation (LLPS). However, like it happens for many other proteins, small changes in their sequences can lead to significant differences in their emergent properties, such as their reaction to a stimulus. This characteristic makes them versatile but also challenging to design and control, due to the absence of adequate mathematical models.

The position: We are looking for a motivated postdoc with solid experience in bioinformatics and in machine learning. The position centers on SRPs and LLPS, and the successful candidate will contribute to several ongoing projects that rely on computational modeling and machine learning approaches. The postdoc will help bring these projects to completion, carry out the required validations, and take the lead in preparing the manuscripts.

Candidate Requirements

- PhD in bioinformatics or related subjects
- Expertise in python coding
- Experience and good understanding of neural networks and machine learning
- Fluent written and spoken English
- Grants writing experience is a plus

The Team: The team is based at the Laboratory of Pathogens and Host Immunity (LPHI) at the University of Montpellier and focuses on applying mathematical and computational approaches to biological systems. Its core activity is the development of deep learning methods for protein design and optimization, with applications in biology and medicine.

To apply

send to **gabriele.orlando@umontpellier.fr**:

- CV with full publication list
- Cover letter
- Names of two referees

Applications will be reviewed on a rolling basis until the positions are filled. Candidates selected for further consideration will be invited to attend an online interview.